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EXAMINER	
WARE, CICELY Q	
ART UNIT	**PAPER NUMBER**
2634	6

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/698,797	BEVAN ET AL.
	Examiner	Art Unit
	Cicely Ware	2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-16 and 19-30* is/are rejected.

7)☒ Claim(s) *5,17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Cimini, Jr. et al. (US Patent 6,208,669).

With regard to claim 29, Cimini, Jr. et al. discloses in (Fig. 3) a communication system in which an integrated chip programmed so as to operable to encode a stream of data and which is operable to output encoded data wherein the chip comprises a convolutional encoder operable to sequentially group data to provide coded bits, which

coded bits are mapped to provide modulated symbols which then are de-multiplexed to form space-time symbols (col. 3, lines 7-40, col. 7, lines 5-11, 18-22).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in view of Terry et al. (6,614,861).

(1) With regard to claim 1, Calderbank et al. discloses in (Figs. 8, 9) a space-time coding apparatus (col. 9, lines 17-21, 26-28, col. 17, lines 38-49) comprising: a data input (col. 2, line 24, col. 9, lines 17-21, 26-28), a plurality of signal outputs couplable to a respective plurality of transmit antennas (col. 2, line 24, col. 9, lines 17-21, 26-28), a trellis encoder implemented using a convolutional encoder and arranged to receive data from the data input and to produce encoded data in the form of code symbols (Fig, 9 (106), col. 9, lines 17-21, 26-28, col. 16, lines 1-20), a modulator arranged to map the encoded data to predetermined modulation symbols (Fig. 8 (114a, 114b)). However Calderbank et al. does not disclose a de-multiplexer arranged to de-multiplex the modulation symbols to the signal outputs.

However Terry et al. discloses an apparatus wherein a de-multiplexer is arranged to de-multiplex the modulation symbols to the signal outputs (col. 1, line 18, col. 3, line 41, col. 5, lines 53-65, col. 6, line 26, Fig. 3 (304, 310), Fig. 5 (512)).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. to incorporate a de-multiplexer arranged to de-multiplex the modulation symbols to the signal outputs in order to convert the received OFDM symbols from serial to parallel form (Terry et al. col. 6, lines 27-28).

(2) With regard to claim 2, claim 2 inherits all the limitations of claim 1. Calderbank et al. further discloses in (Fig. 9) wherein the convolutional encoder is arranged to generate two code symbols for each data bit input to the trellis encoder and wherein the two coed symbols are alternately switched to an output of the trellis encoder (col. 9, lines 63-67, col. 10, lines 1-16).

(3) With regard to claim 4, claim 4 inherits all the limitations of claim 1. Calderbank et al. further discloses wherein the rate of the convolutional encoder and the modulation alphabet of the modulator is such that the number of modulation symbols produced for each trellis transition is greater then the number of signal outputs so that more that one space-time symbol is produced for each trellis transition, whereby the apparatus is arranged to produced multidimensional space-time codes (col. 19, lines 64-67, col. 20, lines 1-50).

(4) With regard to claim 6, claim 6 inherits all the limitations of claim 1. Calderbank et al. further discloses a method of space-time encoding comprising

operating the modulator to map the encoded signals to QPSK symbols to provide modulated signals (col. 18, lines 14).

5. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in combination with Terry et al. (US Patent 6,614,861) as applied to claims 1 and 6 above, and further in view of Wei (US Patent 5,301,209).

(1) With regard to claim 3, claim 3 inherits all the limitations of claim 1. Calderbank et al. in combination with Terry et al. disclose all the limitations of claim 1. However Calderbank et al. in combination with Terry et al. do not disclose wherein the data input receives binary data which is grouped into four-bit data blocks, each block representing a single trellis transition, and the convolutional encoder is arranged to produced eight 1-bit code symbols for each four-bit data block, the modulator being arranged to map the eight code symbols to four QPSK symbols to form a single space-time symbol.

However Wei discloses in (Figs. 1, 5) wherein the data input receives binary data which is grouped into four-bit data blocks, each block representing a single trellis transition, and the convolutional encoder is arranged to produced eight 1-bit code symbols for each four-bit data block, the modulator being arranged to map the eight code symbols to four QPSK symbols to form a single space-time symbol.

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. in combination with Terry et al. to incorporate the data input receiving

binary data which are grouped into four-bit data blocks, each block representing a single trellis transition, and the convolutional encoder arranged to produced eight 1-bit code symbols for each four-bit data block, the modulator being arranged to map the eight code symbols to four QPSK symbols to form a single space-time symbol in order to minimize the decoding depth and improve the error-rate performance of the code in which the resulting code is more suitable for fading channel applications.

(2) With regard to claim 8, claim 8 inherits all the limitations of claim 6 above. Wei further discloses in (Fig. 6) wherein the trellis encoder comprises a convolutional encoder having a shift register with two parts operable to generate two code signals for each data bit input to the trellis encoder, wherein the code signals are encoded by a generator function, wherein the two coded signals are switched to an output of the encoder.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in combination with Terry et al. (US Patent 6,614,861) as applied to claim 6 above, and further in view of Wei (US Patent 5,056,112).

With regard to claim 7, claim 7 inherits all the limitations of claim 6. Calderbank et al. in combination with Terry et al. disclose all the limitations of claim 6. However Calderbank et al. in combination with Terry et al. do not disclose wherein the input receives binary data and the convolutional encoder groups sequentially input data into

quaternary groups, which are processed by the encoder to provide eight-bit data groups which are subsequently converted to QPSK symbols.

However Wei discloses in (Fig. 4) wherein the input receives binary data and the convolutional encoder groups sequentially input data into quaternary groups, which are processed by the encoder to provide eight-bit data groups, which are subsequently converted to QPSK symbols (col. 4, lines 19-22, 25-32, 40-43, 56-61).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. in combination with Terry et al. to incorporate the input receives binary data and the convolutional encoder groups sequentially input data into quaternary groups, which are processed by the encoder to provide eight-bit data groups, which are subsequently converted to QPSK symbols in order to produce a set of interdependent signal points, one signal point in each signaling interval, so that at most one signal point of a codeword is lost, it is possible to recover the transmitted information. Information about the input data appears redundantly in the time domain with the coded signal, which improves the error performance in a fading channel environment.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in view of Terry et al. (US Patent 6,614,861).

With regard to claim 9, Calderbank et al. discloses in (Figs. 8, 9) a method of space-time encoding a data stream comprising the steps of: trellis encoding a data stream using an optimal binary convolutional code of predetermined constraint length,

modulating the encoded data by mapping the encoded data stream to modulation symbols selected from a predetermined modulation alphabet (Fig. 9). However Calderbank et al. does not disclose de-multiplexing the modulation symbols to a plurality of transmit antennas.

However Terry et al. discloses an apparatus wherein a de-multiplexer is arranged to de-multiplex the modulation symbols to the signal outputs (col. 1, line 18, col. 3, line 41, col. 5, lines 53-65, col. 6, line 26, Fig. 3 (304, 310), Fig. 5 (512)).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. to incorporate a de-multiplexer arranged to de-multiplex the modulation symbols to the signal outputs in order to convert the received OFDM symbols from serial to parallel form (Terry et al. col. 6, lines 27-28).

8. Claim 10, 11, 16, 25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in view of Perreau et al. (IEEE Channel Estimation and Symbol Detection for Multiuser CDMA Receivers using HMMS).

(1) With regard to claim 10, Calderbank et al. discloses a method of estimating complex channel gain in a space-time communications system comprising the steps of: generating an initial, relatively coarse estimate of channel gain (col. 16, lines 20-39), receiving space-time encoded information symbols over the channels (col. 16, lines 20-39, 64-67), decoding the information symbols using the initial channel estimate to produce a sequence of symbol estimates (col. 16, 20-39, 64-67). However Calderbank et al. does not disclose refining the channel estimate for each channel, by processing

the received symbols to remove the expected effect of the transmissions carried by all the other channels by performing cancellation using the relevant parts of the sequence of symbol estimates and to remove the expected effect of modulation on each symbol and by averaging the channel estimates over all symbols for each respective channel to produce a refined estimate for each channel; decoding the information symbols again using the refined channel estimate to produce a refined sequence of coded symbol estimates, and repeating steps (d), (e), and (f) until convergence.

However Perreau et al. discloses refining the channel estimate for each channel, by processing the received symbols to remove the expected effect of the transmissions carried by all the other channels by performing cancellation using the relevant parts of the sequence of symbol estimates and to remove the expected effect of modulation on each symbol and by averaging the channel estimates over all symbols for each respective channel to produce a refined estimate for each channel; decoding the information symbols again using the refined channel estimate to produce a refined sequence of coded symbol estimates, and repeating steps (d), (e), and (f) until convergence (Pg. 272, col. 2, lines 16-25, Pg. 274, col. 1, lines 26-53, col. 2, lines 1-17, 32-43, Pg. 275, col. 1, 43-50, col. 2, lines 16-18, Fig. 2).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. refine the channel estimate for each channel, by processing the received symbols to remove the expected effect of the transmissions carried by all the other channels by performing cancellation using the relevant parts of the sequence of symbol estimates and to remove the expected effect of modulation on each symbol and

by averaging the channel estimates over all symbols for each respective channel to produce a refined estimate for each channel; decoding the information symbols again using the refined channel estimate to produce a refined sequence of coded symbol estimates, and repeating steps (d), (e), and (f) until convergence in order to provide very good performance both in terms of estimation accuracy and time of convergence (Perreau et al. pg. 274, col. 1, lines 18-19).

(2) With regard to claim 11, claim 11 inherits all the limitations of claim 10. Calderbank et al. further discloses in (Fig. 22) a method wherein the decoding step includes performing hard decoding to produce hard symbol estimates. Calderbank et al. does not explicitly disclose hard decoding. However it is well known in the art that a Viterbi decoder acts as a hard decoder to produce hard symbol estimates

(3) With regard to claim 16, claim 16 inherits all the limitations of claim 10. Calderbank et al. further discloses in (Fig. 22) wherein the initial estimate is generated bases on a relatively short, transmitted pilot or training sequence (col. 19, lines 15-49).

(4) With regard to claim 25, claim 25 inherits all the limitations of claim 10. Furthermore Calderbank et al. discloses wherein a computer program which, when executing on suitably configured hardware, causes the hardware to perform the steps of claim 10 (col. 4, lines 31-42). Calderbank et al. does not explicitly disclose a computer program. However Calderbank et al. discloses wherein the embodiments are constructed using hardware, which is inherently programmed by software performing the operations.

(5) With regard to claim 30, Calderbank et al. discloses software stored on a machine readable medium operable to encode a stream of data and which is operable to output encoded data wherein the software is programmed to function as a convolutional encoder operable to sequentially group data to provide coded bits, which coded bits are mapped to provide modulated symbols (col. 4, lines 32-42, 50-65).

9. Claims 12-15 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in combination with Perreau et al. (IEEE Channel Estimation and Symbol Detection for Multiuser CDMA Receivers using HMMS) as applied to claim 10 above, in view of Brink (US Patent 6,353,911).

(1) With regard to claim 12, claim 12 inherits all the limitations of claim 10. However Calderbank et al. in combination with Perreau et al. does not disclose wherein the decoding step includes performing soft decoding by producing a sequence of coded symbol probabilities which are then used to calculated symbol estimates in the form of a sequence of coded symbol averages.

However Brink discloses in (Fig. 2) wherein the decoding step includes performing soft decoding by producing a sequence of coded symbol probabilities, which are then used to calculated symbol estimates in the form of a sequence of coded symbol averages (col. 4, lines 43-51).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. to incorporate the decoding step to perform soft decoding by producing a sequence of coded symbol probabilities, which are then used to calculated

symbol estimates in the form of a sequence of coded symbol averages to improve the bit error rate through iterative decoding until a bit error rate floor is reached. A soft value represents the reliability on the bit decision of the respective bit symbol.

(2) With regard to claim 13, claim 13 inherits all the limitations of claim 12. Brink further discloses in (Fig. 1) where in after convergence the coded symbol probabilities calculated in the last decoding step of the iteration loop are output for feeding to the input of the next decoder in a serially-concatenated decoder arrangement (col. 1, lines 51-67, col. 2, lines 1-10).

(3) With regard to claim 14, claim 14 inherits all the limitations of claim 10. Brink further discloses in (Fig. 1) wherein after convergence, hard decisions on the information symbols are made using the final channel estimate (col. 4, lines 43-51).

(4) With regard to claim 15, claim 15 inherits all the limitations of claim 10. Brink further discloses in (Fig. 2) wherein after convergence the information bits are decoded using the final channel estimate (col. 4, lines 43-51).

(5) With regard to claim 19, Perreau et al. further discloses the apparatus being arranged to iteratively repeat the refining of the channel estimation and the production of symbol estimate functions until convergence of the channel estimates occurs (Pg. 274, col. 1, lines 26-53, col. 2, lines 1-17, 32-43, Pg. 275, col. 1, 43-50, col. 2, lines 16-18, Fig. 2).

(6) With regard to claim 20, claim 20 inherits all the limitations of claim 19. Calderbank et al. further discloses in (Fig. 18) wherein the decoder is operable to perform hard decoding to produce hard symbol estimates. Calderbank et al. does not

explicitly disclose hard decoding. However it is well known in the art that a Viterbi decoder acts as a hard decoder to produce hard symbol estimates.

(7) With regard to claim 21, claim 21 inherits all the limitations of claim 19. Brink further discloses in (Fig. 2), wherein the decoder is operable to perform soft decoding by producing a sequence of coded symbol probabilities, which are then used to calculated symbol estimates in the form of a sequence of coded symbol averages (col. 4, lines 43-51).

(8) With regard to claim 22, claim 22 inherits all the limitations of claim 21. Brink further discloses in (Fig. 1) wherein the decoder is operable to output the coded symbol probabilities calculated for feeding to the input of the next decoder in a serially-concatenated decoder arrangement (col. 1, lines 51-67, col. 2, lines 1-10).

(9) With regard to claim 23, claim 23 inherits all the limitations of claim 19. Brink further discloses in (Fig. 1) wherein the decoder is arranged to produce, hard decisions on the information symbols are made using the final channel estimate (col. 4, lines 43-51).

(10) With regard to claim 24, claim 24 inherits all the limitations of claim 19. Perreau et al. further discloses further discloses in wherein after convergence, the decoder is operable to decode the information bits using the final channel estimate (Pg. 274, col. 2, lines 1-17, 32-43, Pg. 275, col. 1, 43-50, col. 2, lines 16-18, Fig. 2).

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in view of Terry et al. (US Patent 6,614,861).

With regard to claim 26, Calderbank et al. discloses in (Figs. 21, 22) a communications system arranged to use space-time coding and comprising transmitter apparatus and receiver apparatus (col. 2, lines 22-24), the transmitter apparatus further comprising an input col. 2, line 24), a trellis encoder and a plurality of signal outputs wherein the input is operable to receive a stream of data (Fig. 3), the trellis encoder operable to encode the data and is operable to output encoded data and wherein the trellis encoder comprises a convolutional encoder operable to sequentially group data to provide coded bits which encoded data is mapped to provide modulated symbols (col. 2, lines 55-58, col. 20, lines 59-67) . However Calderbank et al. does not disclose a de-multiplexer operable to switch signals to the set of signal outputs.

However Terry et al. discloses an apparatus wherein a de-multiplexer is operable to switch signals to the set of signal outputs (col. 1, line 18, col. 3, line 41, col. 5, lines 53-65, col. 6, line 26, Fig. 3 (304, 310), Fig. 5 (512)).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. to incorporate a de-multiplexer is operable to switch signals to the set of signal outputs in order to convert the received OFDM symbols from serial to parallel form (Terry et al. col. 6, lines 27-28).

11. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Calderbank et al. (US Patent 6,115,427) in combination with Terry et al. (US Patent 6,614,861) as applied to claims 19 and 26 above, and further in view of Perreau

et al. (IEEE Channel Estimation and Symbol Detection for Multiuser CDMA Receivers using HMMS).

(1) With regard to claim 27, claim 27 inherits all the limitations of claims 19 and 26. Calderbank et al. in combination with Terry et al. a receiver apparatus including an initial estimator operable to generate an initial, estimate of channel gain (col. 16, lines 20-39), a receiver operable to receive space-time encoded information symbols (col. 16, lines 20-39, 64-67), a decoder operable to produce a sequence of coded symbol estimates using a channel (col. 16, 20-39, 64-67). However Calderbank et al. in combination with Terry et al. does not disclose estimate refining means operable to refine the channel estimate for each channel, by processing the received symbols to remove the expected effect of the transmissions carried by all the other channels by performing cancellation using the relevant parts of the sequence of symbol estimates and to remove the expected effect of modulation on each symbol and by averaging the channel estimates over all symbols for each respective channel to produce a refined estimate for each channel; the apparatus being arranged to iteratively repeat the refining of the channel estimation and the production of symbol estimate functions until convergence of the channel estimates occurs.

However Perreau et al. discloses estimate refining means operable to refine the channel estimate for each channel, by processing the received symbols to remove the expected effect of the transmissions carried by all the other channels by performing cancellation using the relevant parts of the sequence of symbol estimates and to remove the expected effect of modulation on each symbol and by averaging the

channel estimates over all symbols for each respective channel to produce a refined estimate for each channel; the apparatus being arranged to iteratively repeat the refining of the channel estimation and the production of symbol estimate functions until convergence of the channel estimates occurs (Pg. 272, col. 2, lines 16-25, Pg. 274, col. 1, lines 26-53, col. 2, lines 1-17, 32-43, Pg. 275, col. 1, 43-50, col. 2, lines 16-18, Fig. 2).

Therefore it would have been obvious to one of ordinary skill in the art to modify Calderbank et al. in combination with Terry et al. to estimate refining means operable to refine the channel estimate for each channel, by processing the received symbols to remove the expected effect of the transmissions carried by all the other channels by performing cancellation using the relevant parts of the sequence of symbol estimates and to remove the expected effect of modulation on each symbol and by averaging the channel estimates over all symbols for each respective channel to produce a refined estimate for each channel; the apparatus being arranged to iteratively repeat the refining of the channel estimation and the production of symbol estimate functions until convergence of the channel estimates occurs in order to provide very good performance both in terms of estimation accuracy and time of convergence (Perreau et al. pg. 274, col. 1, lines 18-19).

(2) With regard to claim 28, claim 28 inherits all the limitations of claims 26 and 27.

Allowable Subject Matter

12. Claims 5,17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cicely Ware whose telephone number is 703-305-8326. The examiner can normally be reached on Monday – Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Cicely Ware

cqw
April 12, 2004

STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600